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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 2000040831 A
(43) Date of publication of application: 08.02.2000

(51) Int. Cl H01L 29/84
G01P 15/125

(21) Application number: 10206836
(22) Date of filing: 22.07.1998

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**(54) PRODUCTION METHOD OF MECHANICAL
SENSOR OF SEMICONDUCTOR**

(57) Abstract:

PROBLEM TO BE SOLVED: To solve a problem of the failure in forming an electrode when a sacrificial layer is etched.

SOLUTION: A single crystalline silicon substrate 40 and a single crystalline silicon substrate 47 are stacked in a situation that a sacrificial layer 41 is put between the two single crystalline silicon substrates. At the same time, unnecessary areas 52a, 52b, 52c, and 52d of the single crystalline silicon substrate 40 are removed independently. A protection thin film 50 covers the surface of an electrode 49 for taking the electric potential of both movable and fixed electrodes arranged on the single crystalline silicon substrate 40.

Under such conditions, a beam structure consisting of the single crystalline silicon substrate 40 and the fixed electrode is formed after removal of the sacrificial layer 41 of the prescribed area by etching. As the surface of the electrode 49 is covered with the protection thin film 50, it can be avoided that the electrode (pad) 49 disappears due to corrosion in etching liquid when the sacrificial layer is etched, or it can be also avoided that the thickness of a film is reduced.

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